INFORMATION SHEET

ORDER NO.
JAMES H. WHEELER AND EIE LAMBDA, LLC
BRIDGES ON THE RIVER RESTAURANT
SACRAMENTO COUNTY

The Bridges on the River Restaurant is on Garden Highway near Interstate 80 in northwestern Sacramento County. Domestic wastewater from the restrooms and janitorial/kitchen facilities will be discharged to an on-site package treatment plant that will provide secondary aerobic treatment, clarification, and ozone disinfection by batch sequencing. Disinfected effluent will be further treated by pressure filtration and reverse osmosis prior to discharge to either of two shallow groundwater injection wells. Total daily influent flows are estimated to be no more than 5,000 gpd. Water for the restaurant will be supplied by an on-site well approximately 220 feet from the wastewater injection wells.

The site is on the banks of the Sacramento River on the river side of the flood protection levee. Shallow groundwater occurs at approximately 15 feet below the ground surface, and is hydraulically connected to the river. As such, the groundwater depth and gradient (both direction and magnitude) will change with the river level. During the dry season, groundwater will generally be deeper and flow southeast towards the river. During the rainy season, groundwater should be shallower, with flows generally toward the northeast. Based on limited pre-discharge monitoring of shallow groundwater near the proposed injection wells, groundwater quality beneath the site is very good, with seasonal variation associated with seasonal gradient changes

The derivation of key specifications and provisions in the proposed Order is discussed below.

Effluent Limitations and Effluent Monitoring
The WWTF utilizes direct shallow aquifer injection as the sole means of wastewater disposal. Although reverse osmosis treatment should remove the majority of the dissolved constituents, bacteria, and viruses remaining in the disinfected effluent, groundwater quality protection relies on the integrity of the reverse osmosis unit and its seals. Because of the proximity of the injection wells to the restaurant's potable water supply well, the discharge may pose a threat to a public water supply. Therefore, it is appropriate to require frequent treatment system and effluent monitoring to ensure that best practicable treatment and control (BPTC) and the highest water quality consistent with the maximum benefit to the people of the State will be achieved.

The effluent limitations and monitoring requirements for total coliform organisms and MS-2 coliphage conductivity were developed in consultation with the Department of Health Services Drinking Water Branch. These limitations should be easily achievable with proper system operation and maintenance. Because there is little groundwater monitoring data available, it is not possible to determine appropriate background concentrations from which to develop effluent limitations for inorganic constituents. Additionally, it is not possible to determine the optimal treatment capabilities of the system until after it is in operation. However, continuous electrical conductivity monitoring will show changes in effluent salinity, thereby providing adequate warning of reverse osmosis system malfunction and potential violations of the groundwater limitations. Likewise, coliform and coliphage breakthrough, which will be associated with reverse osmosis system failure, will be monitored regularly.

Groundwater Limitations and Groundwater Monitoring
As stated above, the quality of shallow groundwater at the injection wells site is generally good, with expected seasonal variations that are not fully known. Although some analytical data for groundwater are available, the RWD did not include a statistical analysis to formally determine background groundwater concentrations.

The Discharger has not provided any documentation showing that it should be allowed to degrade groundwater consistent with State Board Resolution No. 68-16, and therefore no groundwater degradation is allowed. This Order requires the installation of groundwater monitoring wells around the injection wells, as well as quarterly groundwater monitoring to determine whether the discharge causes degradation. If degradation is detected, then the Discharger must either show that it complies with Resolution No. 68-16 or propose facility improvements to prevent such degradation.

Provision G.1.a
The wastewater treatment system is mechanically complex and relies on diligent attention to inspection, monitoring, and maintenance to ensure compliance with the Effluent and Groundwater Limitations of this Order. The Report of Waste Discharge states that the Discharger will retain a certified wastewater treatment plant operator. Therefore, Provision G.1.a requires that the Discharger submit documentation demonstrating that a certified wastewater treatment plant operator has been retained to perform all operation, maintenance, and routine monitoring of the wastewater treatment system.

Provision G.1.b
The WWTF will be equipped with liquid level alarm lights and a pipe to direct excess wastewater back to the equalization tank in the event of a pump or power failure. However, the system will operate 24 hours per day and the certified operator will not be on-site at all times to observe the alarm lights. The system has no backup power supply or auto dialer system, and there is no method to return inadequately filtered effluent to the reverse osmosis unit. This lack of system redundancy could lead to discharge of inadequately treated wastewater to the ground surface and/or groundwater, thus posing a potential threat to groundwater and the restaurant water supply. Therefore, Provision G.1.b requires that the Discharger submit a specific plan for design modifications to ensure adequate containment and prevent discharges of inadequately treated effluent to the injection wells.

Provisions G.1.c and G.1.d
The wastewater treatment and disposal system is complex and will be constructed from unit process equipment obtained from more than one manufacturer. Therefore, Provision G.1.c requires that the Discharger submit a detailed Operation and Maintenance Manual to ensure that the operator understands the appropriate inspection, monitoring, and maintenance protocols. Additionally, operation, maintenance, and monitoring are expected to be costly relative to other similar-sized systems. Therefore, Provision G.1.d requires that the Discharger submit a detailed cost estimate for operation, maintenance, and monitoring to ensure that the Discharger fully understands this obligation.

Provision G.1.e
At least one additional groundwater monitoring well is needed to ensure that there is at least one background well that is consistently upgradient or crossgradient from the injection wells. Therefore, Provision G.1.e requires that the Discharger submit a Groundwater Monitoring Well Installation Workplan.

ALO:7/21/05